Kevork N. Abazajian

Curriculum Vita

Present Address

Theoretical Astrophysics, MS 209
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Research Positions

2001 - present	Research Associate NASA/Fermilab Theoretical Astrophysics Group Fermi National Accelerator Laboratory
2002 - present	Associate Fellow Center for Cosmological Physics, University of Chicago
2001 - present	Visiting Scholar Astronomy & Astrophysics Department, University of Chicago
1997 - 2001	Graduate Research Assistant George M. Fuller, University of California, San Diego

Education

2001	Ph.D. Physics, University of California, San Diego Thesis: *Neutrino Cosmology and Astrophysics* Advisor: George M. Fuller
1997	M.S. Physics, University of California, San Diego
1996	B.S. Physics, University of Houston Honors College Magna Cum Laude Minors: Mathematics and Philosophy

Academic Honors

NASA Graduate Student Research Program Fellowship, 1999-2001
Distinguished Senior Honors Thesis, University of Houston Honors College
National Merit Scholar, University of Houston Honors College
Moody Scholar, University of Houston Honors College

Professional Activities

Referee for Physical Review Letters, Physical Review D, Physics Letters B
Organizer, *Workshop on Neutrino News from the Lab and the Cosmos*, Fermilab, Oct. 2002
Organizer, Theoretical Astrophysics Group Seminars at Fermilab, Spring 2002
Volunteer for Fermilab Saturday Morning Physics program for high-school students

Publications

1. K. Abazajian *et al.* [SDSS Collaboration], "The First Data Release of the Sloan Digital Sky Survey," arXiv:astro-ph/0305492.

2. K. N. Abazajian and S. Dodelson, "Neutrino mass and dark energy from weak lensing," *Phys. Rev. Lett.* **91**, 041301 (2003).

3. K. N. Abazajian, "Telling Three from Four Neutrinos with Cosmology," in press, *Astropart. Phys.*, **19**, 303 (2003).

4. K. N. Abazajian and G. M. Fuller, "Bulk QCD Thermodynamics and Sterile Neutrino Dark Matter," *Phys. Rev.* D **66**, 023526 (2002).

5. K. N. Abazajian, J. F. Beacom and N. F. Bell, "Stringent constraints on cosmological neutrino antineutrino asymmetries from synchronized flavor transformation,", *Phys. Rev.* D **66**, 013008 (2002).

6. D. E. Vanden Berk *et al.*, "SDSS J124602.54+011318.8: A Highly Luminous Optical Transient at $z = 0.385$," *Astrophys. J.* **571**, 673 (2002).

7. K. N. Abazajian, G. M. Fuller and M. Patel, "Cosmological Constraints on Bulk Neutrinos," *Phys. Rev. Lett.* **90**, 061301 (2003).

8. K. N. Abazajian, G. M. Fuller and W. Tucker, "Direct detection of warm dark matter in the X-ray," *Astrophys. J.* **562**, 593 (2001).

9. N. Dalal, K. N. Abazajian, E. Jenkins and A. Manohar, "Testing the cosmic coincidence problem and the nature of dark energy," *Phys. Rev. Lett.* **87**, 141302 (2001).

10. K. N. Abazajian, G. M. Fuller and M. Patel, "Sterile neutrino hot, warm, and cold dark matter," *Phys. Rev.* D **64**, 023501 (2001).

11. J. Pruet, K. N. Abazajian and G. M. Fuller, "New connection between central engine weak physics and the dynamics of gamma-ray burst fireballs," *Phys. Rev.* D **64**, 063002 (2001).

12. K. N. Abazajian, G. M. Fuller and X. Shi, "The increase in the primordial ^{4}He yield in the two-doublet four-neutrino mixing scheme," *Phys. Rev.* D, **62**, 093003 (2000).

13. G. M. Fuller, J. Pruet and K. N. Abazajian, "Can a large neutron excess help solve the baryon loading problem in gamma ray burst fireballs?" *Phys. Rev. Lett.* **85**, 2673 (2000).

14. X. Shi, G. M. Fuller and K. N. Abazajian, "Neutrino-mixing generated lepton asymmetry and the primordial ^{4}He abundance," *Phys. Rev.* D **60**, 063002 (1999).

Conference Proceedings

1. K. Abazajian, "Gamma-Ray Burst Afterglows," in *Les Rencontres de Physique de la Vallée d' Aoste*, La Thuile, Italy, 3-9 March, 2002.

2. K. Abazajian, X. Shi and G. M. Fuller, "Active-Sterile Neutrino Mixing and Primordial Nucleosynthesis," in *Proceedings of the American Physical Society (APS) Meeting of the Division of Particles and Fields (DPF 99)*, Los Angeles, CA, 5-9 Jan 1999, `http://www.dpf99.library.ucla.edu`, `astro-ph/9904052`.

3. K. Abazajian and G. M. Fuller, "Are Gamma Ray Bursts Signals of Supermassive Black Hole Formation?" in *Proceedings of International Conference on the Activity of Galaxies and Related Phenomena*, Byurakan, Armenia, 17-21 Aug. 1998, `astro-ph/9812287`.

4. K. Abazajian and G. M. Fuller, "Baryon/Anti-Baryon Inhomogeneity and Big Bang Nucleosynthesis," in *Proceedings of the 3rd International Symposium on Sources and Detection of Dark Matter in the Universe*, Santa Monica, CA, 18-20 Feb. 1998, `astro-ph/9812288`.

Invited Conference Presentations

Neutrino Cosmology
: Aspen Winter 2003 Conference on Particle Physics, January 2003 (planned)

Telling Three from Four Neutrinos with Cosmology
: COSMO-02, International Workshop on Particle Physics and the Early Universe, Chicago, September 2002

Gamma-Ray Burst Afterglows
: Les Rencontres de Physique de la Vallée d'Aoste, La Thuile, Italy, March 2002

Are Gamma-Ray Bursts Signals of Supermassive Black Hole Formation?
: International Conference on the Activity of Galaxies and Related Phenomena, Byurakan, Armenia, August 1998

Seminars and Contributed Conference Talks

Sterile Neutrino Dark Matter
: Workshop on Neutrino News from the Lab and the Cosmos, Fermilab, October 2002

New Constraints on Neutrino Degeneracies
: Astrophysics Seminar, University of Notre Dame, September 2002

Direct Detection of the Dark Matter in the X-ray
: Predictions of Cold Dark Matter on Small Scales Workshop, Center for Cosmological Physics, University of Chicago, August 2002

Stringent Constraints on Cosmological Lepton Number from Solar Neutrinos
: Santa Fe Summer Cosmology Workshop, July 2002

Seminars and Contributed Conference Talks (continued)

Finding and Resolving Crises in Cold Dark Matter
Aspen Workshop on Large Scale Structure in the Era of Large Surveys, Aspen Center for Physics, June 2002

Stringent Constraints on Cosmological Lepton Number from Solar Neutrinos
Pheno 2002 Symposium, University of Wisconsin, Madison, April 2002

Neutrino Cosmology
Institute for Nuclear Theory Mini-workshop on Neutrino Physics, Program on Nucleosynthesis, April 2002

Making Dark Matter and Deriving Constraints with Neutrino Mixing in the Early Universe, Center for Cosmological Physics Seminar, University of Chicago, November 2001

A Cosmic "Coincidometer"
Cosmology Seminar, Department of Physics, University of California Davis, October 2001

Direct Detection of Warm Dark Matter
Theoretical Physics Seminar, Purdue University, September 2001

Cold Neutrino Dark Matter
Nuclear Physics Seminar, Lawrence Livermore National Laboratory, February 2001

Cold Neutrino Dark Matter
Theoretical Astrophysics Group Seminar, Fermilab, January 2001

Cold Neutrino Dark Matter
Theoretical Physics Seminar, TRIUMF, Vancouver, January 2001

Sterile Neutrinos in the Early Universe
NATO Advanced Study Institute 2000: Recent Developments in Particle Physics and Cosmology, Cascais, Portugal, July 2000

Neutrino Mixing in the Early Universe and the Two-doublet Neutrino Mass Model
Institute for Nuclear Theory Program on Low-Energy Neutrino Physics, August 1999

Active-Sterile Neutrino Mixing and Primordial Nucleosynthesis
American Physical Society Meeting of the Division of Particles and Fields, Los Angeles, California, January 1999

Baryon/Anti-Baryon Inhomogeneity and Big Bang Nucleosynthesis
The 3rd International Symposium on Sources and Detection of Dark Matter in the Universe, Marina Del Rey, California, February 1998

References

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